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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,471	04/24/2001	Patrizio Vinciarelli	00614-120001	4503

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EXAMINER

BENENSON, BORIS

ART UNIT PAPER NUMBER

2836

DATE MAILED: 09/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,471

Applicant(s)

VINCIARELLI ET AL.

Examiner

Boris Benenson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 1899.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 25-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 25-34 is/are rejected.
- 7) ☒ Claim(s) 13, 14, 35 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: _____

Election/Restrictions

Applicant disclosed and claimed two different inventions.

The first invention is related to an apparatus designed for providing protection of an internal circuit against occurrence of an adverse electrical event. (Claims 1-14 and 25-36)

The second invention is related to an apparatus designed for filtering a power converter by attenuating a ripple generated at the output or input of the converter. (Claims 15-24 and 37-39)

Inventions claimed in first group Claims and in second group of Claims are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions designed for different functions. "Two classes of secondary functions and services are circuit protection and filtering (Page 6, Lines 19-21)".

In telephone conversation on 8/20/03 attorney Andrew T. D'Amico (registration number 33375) have elected Group 1 (Claims 1-14 and 25-36).

Drawings

1. New corrected drawings are required in this application because in some instances letters and numbers are unreadable. Applicant is advised to employ the services of a competent

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patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

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3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The disclosure is objected to because of the following informalities:

- a. On page 7, line 6 - "a DC voltage source (say, between **1.5 and 100 volts**, not shown) connected to an input 15", but on Figure 3 that parameter is shown as **1.5-30 volts**.
- b. On page 7, line 20 - "The **control circuit 24** provides three primary functions", but on line 16 and Figure 4 the number **24** is assigned to a **body diode** and the **control circuit is** numbered as **25**.

Appropriate correction is required.

Information Disclosure Statement

Note that an applicant's duty of disclosure of material and information is not satisfied by presenting a patent examiner with "mountain of largely irrelevant [material] from which he is

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presumed to have been able, with his expertise and with adequate time, to have found the critical [material]. It ignores the real world conditions under which examiners work." *Rohm & Haas Co. v. Crystal Chemical Co.*, 722 F. 2d 1556, 1573 [220 USPQ 289] (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). (Emphasis in original). Patent applicant has a duty not just to disclose pertinent prior art references but to make a disclosure in such way as not to "bury" it within other disclosures of less relevant prior art; See *Golden Valley Microwave Foods Inc. v. Weaver Popcorn Co. Inc.*, 24 USPQ2d 1801 (N.D. Ind. 1992); *Molins PLC v. Textron Inc.*, 26 USPQ2d 1889, at 1899 (D.Del. 1992); *Penn Yan Boats, Inc. v. Sea Lark Boats, Inc. et al.*, 175 USPQ 260, at 272 (S.D. F.l. 1972).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marusik (5,945,816) in view of Black et al.

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(5,009,618). Marusik disclosed a self-biased power isolator system, comprising two or more electronic components (Fig.4, Pos. 120, 160) having: an internal circuit having a controlled element (120 or 160) and control element (50 or 90), the internal circuits are connected in parallel to common point (node 2) to supply power and cooperatively protect the external circuit against occurrence of an adverse electrical event wherein none of the electronic components has rating sufficient by itself to protect the external circuit (load 18). Marusik disclosed that "the first node is operable to be coupled to a power supply 10 and the second node is operable to be coupled to a load 18" (Abstract). All of the internal circuits, are similar and therefore should be manufactured as a replaceable blocks. It is well known in the art (Kirchoff's 1st law) that the current flowing from node 2 through the load (18) will be equal to sum of current flowing from element 120 and current flowing from element 160. If, as Marusik suggested, N identical circuits will be installed, each node will experience $1/N$ of the load current and therefore will need less rating of the elements. Marusik is silent about type of the terminals coupled to the internal circuits, Black et al. teach a method and apparatus for making electrical connecting device where an "edge board connector is one which is mounted on one printed circuit board, and having contacts that are electrically connected to printed circuits on that printed circuit board and are electrically connectable to terminal pads of another printed circuit board to facilitate so called mother board - daughter board arrangements"

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(Col.2, Lines 31-36). It would have been obvious to one of ordinary skill in the art at the time the invention to modify Marusik with Black et al. teachings and make all of the internal circuits as identical, easily replaceable surface mounted daughter-boards.

Referring to Claim 2, Marusik disclose "the use of the N+1 redundant power supply architecture" (Col. 1, Lines 25-26), where loss of power to any of external circuit is considered to be an event that trigger isolation of that power supply line.

Referring to Claims 3 and 8, a voltage change at a point of load (Node 3) will change a balance on comparator/amplifier (50 and 90) and therefore control potential on a base of MOSFET (120,160).

Referring to Claim 4 and 9, the internal circuit is comprises of a controlled element, which is a FET and a control circuit that is connected to control FET.

Referring to Claim 5, internal circuit will detect a current reversal between the power source and the load and will close MOSFET.

Referring to Claim 6, as it was discussed earlier providing multiple parallel passes between a single power source and the external circuit is based on Kirchoff's law. The parallel connection of the internal circuits is simply duplication of parts. It would have been obvious to one having ordinary skill

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in the art at the time the invention was made to connect the internal circuits in parallel, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. V. Bemis Co.*, 193 USPQ 8.

Referring to Claim 7, use of voltage generator, adapted to derive power from an external source to provide a voltage to drive internal circuit is obvious and have shown on Figure 3 (Vcc source connected to elements 50 and 90).

Referring to Claims 10-11, Black teach a "mother board - daughter board arrangements" that is obviously assumed FET and its control circuit on a single substrate (daughter board) that may comprise discret components or integrated circuit.

6. Claims 25-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Notaro et al. (5,781,390). Notaro et al. disclose an integrated supply protection circuit comprising terminals for connecting the protection circuit respectively to a power source (Fig.1, Pos. 115) and external circuit (120) that is to be powered by the source and protected by the protection circuit against occurrence of an electrical event. The protection circuit is connected to provide two different kinds

of protection (a reverse battery condition and an overvoltage condition) using two controlled elements (140 and 145).

Referring to Claims 26-27, two protection mechanisms are connected in series between the source and the external circuit. The protection mechanisms include two FET connected in series.

Referring to Claim 28, the integrated supply protection circuit "realizes this protection on a single chip without the need for any external components by using a novel dual power MOSFET structure with back-to-back drains" (Col.5, Lines 20-23).

Referring to Claims 30-34, arrangements where protection mechanisms connected across an external circuit and shunting current away from protected circuit and redirect it to the ground are conventional and well known in the art.

Allowable Subject Matter

7. Claims 13-14 and 35,36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 14-15 are allowable because none of the prior art of record disclose an apparatus for protecting an external circuit against occurrence of an adverse electrical event in which the internal circuit includes elements adapted to pull up a voltage at one of the terminals when the voltage at the terminal drops

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and elements adapted to pull down the voltage at the one of the terminals when the voltage at the terminal rises in combination with the other claim limitations.

Claims 35-36 are allowable because none of the prior art of record disclose an apparatus for protecting an external circuit against occurrence of an adverse electrical event in including an energy reservoir at a predetermined voltage, and in which the protection mechanism shunts current to the energy reservoir in combination with the other claim limitations.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris Benenson whose telephone number is (703) 305-6917. The examiner can normally be reached on M-F (8:20-6:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (703) 308-3119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

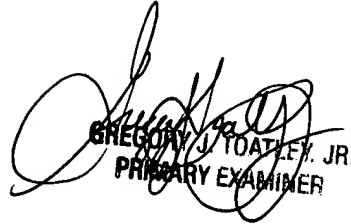
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Boris Benenson
Examiner
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B.B.


GREGORY J. TOATLEY, JR.
PRIMARY EXAMINER